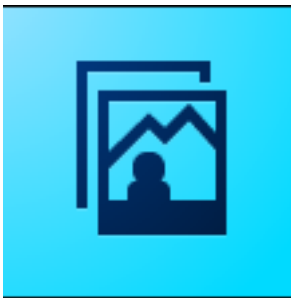
What is Adobe Camera Raw?

Camera Raw software is included as a plug-in with Adobe After Effects® Adobe Photoshop, Lightroom and Photoshop Elements and also adds functionality to Adobe Bridge. Camera Raw gives each of these applications the ability to import and work with camera raw files. You can also use Camera Raw to work with JPEG and TIFF files. As of June 10, 2013 the latest version of Adobe Camera Raw is 8.1.
Note: Camera Raw supports images up to 65,000 pixels long or wide and up to 512 megapixels. Camera Raw converts CMYK images to RGB upon opening.

The Adobe Camera Raw plug-in became the latest must-have tool for professional photographers when it was released in February 2003. This powerful plug-in has been frequently updated to support more cameras and include more features and is available as part of Adobe Photoshop CC. Adobe Photoshop Lightroom® software is built upon the same powerful raw processing technology that is available in the Camera Raw plug-in.



Support for the following cameras is included in Camera Raw 8.1 and Lightroom 5. Camera Raw 8.1 is compatible with both Photoshop CC and Photoshop CS6.

Canon
EOS-1D
EOS-1Ds
EOS- 1D C
EOS-1D Mark II
EOS-1D Mark II N
EOS-1Ds Mark II
EOS-1D Mark III
EOS-1Ds Mark III
EOS-1D Mark IV
EOS-1D X
EOS 5D
EOS 5D Mark II
EOS 5D Mark III
EOS 6D
EOS 7D
EOS 10D
EOS 20D
EOS 20Da
EOS 30D
EOS 40D
EOS 50D
EOS 60D
EOS 60Da
EOS D30
EOS D60
EOS 100D (Rebel SL1/ Kiss X7)
EOS 300D (Digital Rebel/ Kiss Digital)
EOS 350D (Digital Rebel XT/EOS Kiss Digital N)
EOS 400D (Digital Rebel XTi/EOS Kiss Digital X)
EOS 450D (Digital Rebel XSi/EOS Kiss X2)
EOS 500D (Digital Rebel T1i/EOS Kiss X3 Digital)
EOS 550D (Digital Rebel T2i/EOS Kiss X4 Digital)
EOS 600D (Rebel T3i / Kiss X5 Digital)
EOS 650D (Rebel T4i / Kiss X6i)
EOS 700D (Rebel T5i / Kiss X7i)
EOS 1000D (Digital Rebel XS/EOS Kiss F)
EOS 1100D (Rebel T3 / Kiss X50 Digital)
EOS M
PowerShot 600
PowerShot A5
PowerShot A50
PowerShot S30
PowerShot S40
PowerShot S45
PowerShot S50
PowerShot S60
PowerShot S70
PowerShot S90
PowerShot S95
PowerShot S100
PowerShot S100V
PowerShot S110
PowerShot SX1 IS
PowerShot SX50 HS
PowerShot G1
PowerShot G1 X
PowerShot G2
PowerShot G3
PowerShot G5
PowerShot G6
PowerShot G9
PowerShot G10

PowerShot G11
PowerShot G12
PowerShot G15
PowerShot Pro70
PowerShot Pro90 IS
PowerShot Pro1

Casio
EXILIM EX-F1 (DNG)
EXILIM EX-FC300S (DNG)
EXILIM EX-FH20 (DNG)
EXILIM EX-FH25 (DNG)
EXILIM EX-FH100 (DNG)
EXILIM EX-ZR700 (DNG)
EXILIM EX-ZR710 (DNG)
EXILIM EX-ZR750 (DNG)
EXILIM EX-ZR1000 (DNG)

Contax
N Digital

Epson
R-D1
R-D1s
R-D1x

Fujifilm
FinePix E900
FinePix F505EXR
FinePix F550EXR
FinePix F600EXR
FinePix F605EXR
FinePix F700
FinePix F770EXR
FinePix F775EXR
FinePix F800EXR
FinePix F900EXR
FinePix HS10
FinePix HS20EXR
FinePix HS30EXR
FinePix HS33EXR
FinePix HS50EXR
FinePix IS-1
FinePix IS Pro
FinePix S100FS
FinePix S2 Pro
FinePix S200 Pro
FinePix S20 Pro
FinePix S3 Pro
FinePix S5 Pro
FinePix S5000 Z
FinePix S5200/5600
FinePix S6000fd/S6500fd
FinePix S7000 Z
FinePix S9000/9500
FinePix S9100/9600
FinePix SL1000
X10
X20
X100
X100s
X-S1
X-E1
X-Pro1
XF1

Hasselblad
Hasselblad 503CWD
Hasselblad CF-22
Hasselblad CF-22MS
Hasselblad CF-39
Hasselblad CF-39MS
Hasselblad CFH-22
Hasselblad CFH-39
Hasselblad CFV
Hasselbald CFV-50
Hasselblad H2D-22 (DNG)
Hasselblad H2D-39 (DNG)
Hasselblad H3D-22
Hasselblad H3D-31
Hasselblad H3D-39
Hasselblad H3DII-22
Hasselblad H3DII-31
Hasselblad H3DII-39
Hasselblad H3DII-39MS
Hasselblad H3DII-50
Hasselblad H4D-31
Hasselblad H4D-40
Hasselblad H4D-50
Hasselblad H4D-50MS
Hasselblad H4D-60
Hasselblad H4D-200MS
Hasselblad H5D-40
Hasselblad H5D-50
Hasselblad H5D-60

Kodak
DCS 14n
DCS Pro 14nx
DCS 760
DCS Pro SLR/n
EasyShare P712
EasyShare P850
EasyShare P880
EasyShare Z980
EasyShare Z1015 IS
EasyShare Z981
EasyShare Z990
DCS 720x

Konica Minolta
DiMAGE A1
DiMAGE A2
DiMAGE A200
DiMAGE 5
DiMAGE 7
DiMAGE 7i
DiMAGE 7Hi
Maxxum 7D / DYNAX 7D
ALPHA SWEET DIGITAL (Japan)
ALPHA-5 DIGITAL (China)
MAXXUM 5D (USA)
DYNAX 5D (Europe)

Leaf
AFi II 6
AFi II 7
Aptus II 5
Aptus II 6
Aptus II 7
Aptus II 12
Aptus II 12R
Aptus 17
Aptus 22
Aptus 54s
Aptus 65
Aptus 65s
Aptus 75
Aptus 75s
Credo 40
Credo 60
Credo 80
Valeo 6
Valeo 11
Valeo 17
Valeo 22

Leica
DIGILUX 2
DIGILUX 3
Digital-Modul-R (DNG)
D-LUX 2
D-LUX 3
D-LUX 4
D-LUX 5
D-LUX 6
M8 (DNG)
M9 (DNG)
M (Typ 240) (DNG)
M Monochrom(DNG)
M-E (DNG)
S (DNG)
V-LUX 1
V-LUX 3
V-LUX 4
X-1 (DNG)
X-2 (DNG)

Mamiya
DM22
DM28
DM33
DM40
DM56
M18
M22
M31
ZD

Nikon*
1 J1
1 J2
1 J3
1 S1
1 V1
1 V2
Coolpix 5000
Coolpix 5400
Coolpix 5700
Coolpix 8400
Coolpix 8700
Coolpix 8800

Coolpix A
Coolpix P330
Coolpix P6000
Coolpix P7000
Coolpix P7100
Coolpix P7700
D1
D1H
D1X
D100
D200
D2H
D2Hs
D2X
D2Xs
D3
D3s
D3X
D300
D300s
D600
D3000
D3100
D3200
D4
D40
D40X
D50
D5000
D5100
D5200
D60
D600
D70
D70s
D700
D7000
D7100
D80
D800
D800E
D90

Olympus
E-1
E-3
E-5
E-10
E-20
E-30
E-420
E-450
E-520
E-600
E-620
E-M5
E-P1
E-P2
E-PL1
E-PL1s
E-PL2
E-P3
E-P5
E-PL3
E-PL5
E-PL6
E-PM1
E-PM2
EVOLT E-300
EVOLT E-330
EVOLT E-400
EVOLT E-410
EVOLT E-500
EVOLT E-510
C-5050 Zoom
C-5060 Zoom
C-7070 Wide Zoom
C-8080 Wide Zoom
SP-310
SP-320
SP-350
SP-500 UZ
SP-510 UZ
SP-550 UZ
SP-560 UZ
SP-565 UZ
SP-570 UZ
XZ-1
XZ-2 iHS
XZ-10

Panasonic
DMC-FX150
DMC-FZ8
DMC-FZ18
DMC-FZ28
DMC-FZ30
DMC-FZ40 (FZ45)
DMC-FZ35
DMC-FZ38
DMC-FZ50
DMC-FZ100
DMC-FZ150
DMC-FZ200
DMC-G1
DMC-G10
DMC-G2
DMC-G3
DMC-G5
DMC-G6
DMC-GF1
DMC-GF2
DMC-GF3
DMC-GF3KK
DMC-GF5
DMC-GH2
DMC-GH3
DMC-GX1
DMC-L1
DMC-LC1
DMC-LF1
DMC-L10
DMC-LX1
DMC-LX2
DMC-LX3
DMC-LX5
DMC-LX7
DMC-GH1

Pentax
ist D*
ist DL*
ist DL2*
ist DS*
ist DS2*
K10D (DNG, PEF)
K100D
K100D Super
K110D
K20D (DNG, PEF)
K200D (DNG, PEF)
K2000 (DNG, K-m)
K-01
K-5 (DNG, PEF)
K-5 II (DNG, PEF)
K-5 IIs (DNG, PEF)
K-7 (DNG, PEF)
K-30 (DNG)
K-r
K-x (DNG, PEF)
MX-1
Q
Q10
645D (DNG, PEF)

Phase One
H 20
H 25
IQ140
IQ160
IQ180
IQ260*
P 20
P 20+
P 21
P 21+
P 25
P 25+
P 30
P 30+
P 40+
P 45
P 45+
P 65+

Ricoh
GR (DNG)
GR Digital (DNG)
GR Digital II (DNG)
GR Digital III (DNG)
GR Digital IV (DNG)
GX100 (DNG)
GX200 (DNG)
GXR MOUNT A12
GXR MOUNT A16 24-85mm F3.5-5.5 (DNG)
GXR, S10 24-72mm F2.5-4.4 VC (DNG)
GXR, GR A12 50mm F2.5 MACRO (DNG)
GXR, GR LENS A12 28mm F2.5 (DNG)
GXR, GXR P10 (DNG)

Samsung
EX2F (DNG)
GX-10 (DNG)
GX-20 (DNG)
GX-1S
GX-1L
NX 5
NX10
NX100
NX1000
NX20
NX200
NX2000
NX210
NX11
NX300
Pro 815 (DNG)
TL350 (WB2000)
TL500 (EX1)

Sigma
DP1
DP1s
DP2
SD9
SD10
SD14

Sony
A100
A200
A230
A290
A300
A330
A350
A380
A390
A500
A450
A550
A560
A580
A700
A850
A900
Alpha NEX-3
Alpha NEX-5
Alpha NEX-3N
Alpha NEX-5N
Alpha NEX-5R
Alpha NEX-6
Alpha NEX-7
Alpha NEX-C3
Alpha NEX-F3
Alpha NEX-VG20
Alpha NEX-VG30
Alpha NEX-VG900
Alpha SLT-A33
Alpha SLT-A35
Alpha SLT-A37
Alpha SLT-A55V
Alpha SLT-A57
Alpha SLT-A65
Alpha SLT-A58
Alpha SLT-A77
Alpha SLT-A99V
DSC-F828
DSC-R1
DSC-RX1
DSC-RX100
DSC-V3

The following cameras can natively capture DNG format raw files and thus are compatible with Camera Raw version 2.4 and later.

Casio
Exilim EX-F1
Exilim EX-FC300S
EXILIM EX-FH20
EXILIM EX-FH25
EXILIM EX-FH100
EXILIM EX-ZR1000
Exilim EX-ZR700
Exilim EX-ZR710
Exilim EX-ZR750

Hasselblad
H2D
H2D-22
H2D-39

Leica
Digital-Modul-R
M Monochrom
M (Typ 240)
M8
M9
M-E
S
S2
X1
X2

Pentax
K10D
K20D
K200D
K-5
K-5 II
K-5 IIs
K-7
K-x
K-30
Q
MX-1
Q-10
645D

Ricoh
GR Digital
GR Digital II
GR Digital III
GR Digital IV
GX100
GX200
GXR, S10 24-72mm F2.5-4.4 VC
GXR, GR A12 50mm F2.5 MACRO
GXR, GR LENS A12 28mm F2.5
GXR MOUNT A16 24-85mm F3.5-5.
GXR, GXR P10

Samsung
EX2F
GX-10
GX-20
Pro 815

* The file encryption found in some Nikon raw formats has caused some users to question the level of cooperation between Nikon and Adobe in providing solutions for raw processing. Get more information about Nikon and Adobe's joint commitment to the common needs of customers.
† The DNG raw file format is supported in previous versions of Lightroom and Camera Raw. This update improves the color and noise profiles for these models.
Note: Adobe is often able to provide preliminary support for raw files from new camera models not listed above. Camera Raw and Lightroom will open and edit these files, but profiling and testing is not complete.

What if I own an older version of Photoshop like CS2, CS3, CS4 or CS5? Or Lightroom 1, 2, 3 or 4?

Do I have to buy a new version of Photoshop or Lightroom just to get the latest camera support?
The answer: You don't have to. Adobe provides backwards compatibility for the latest cameras for FREE in Photoshop CS2, CS3, CS4 and CS5, as well as Lightroom 1, 2, 3 & 4, through the Adobe DNG Converter.

You can download the latest DNG Converter here:
Windows: http://www.adobe.com/go/dng_converter_win
Mac: http://www.adobe.com/go/dng_converter_mac

I still want an update for the the Adobe Camera Raw plug-in for Photoshop CS2, CS3, CS4, CS5 or Lightroom 1, 2, 3, 4

The problem with supporting Adobe Camera Raw plug-in updates for legacy version of Photoshop and Lightroom is camera manufacturers insist on creating a new proprietary raw format each time they come out with a new camera – and new cameras are coming out faster and in greater volume. If camera manufactures either settled on a single raw format for their brand of cameras or just used DNG it would make compatibility a non-issue.

It's untenable to keep updating previous versions of the Adobe Camera Raw plug-in going back to CS2 to support new cameras/raw formats in a timely fashion. Using the DNG converter is the fastest way to deliver backwards compatibility to ALL users (CS2, CS3, CS4, CS5 Lightroom 1, 2, 3 & 4, as well as 3rd party apps that support DNG). This allows us to support the greatest number of customers and cameras as possible.

What are the benefits of using DNG?

There are other benefits to using DNG besides backward compatibility if you haven't explored those:

1. The metadata, keywords and raw adjustments are stored in the file – along with a processed preview of the image. This makes the file portable and keeps your metadata safe and secure.
2. DNG files are smaller than the original raw file, which will save you disk space and time in the long run.
3. DNG is an openly specified file format which means the file format isn't going away. If you use another raw processor that supports DNG, you don't have to worry about compatibility or portability of your metadata.
4. Hundreds of software manufacturers such as Apple and Google have developed support for DNG. And respected camera manufacturers such as Leica, Casio, Ricoh, Samsung, and Pentax have introduced cameras that provide direct DNG support.

For photographers:

- DNG format helps promote archival confidence, since digital imaging software solutions will be able to open raw files more easily in the future.
- A single raw processing solution enables a more efficient workflow when handling raw files from multiple camera models and manufacturers.
- A publicly documented and readily available specification can be easily adopted by camera manufacturers and updated to accommodate technology changes.

For hardware and software manufacturers:

- DNG removes a potential barrier to new camera adoption, since raw files from new models will be immediately supported by Photoshop and other applications.
- The DNG format allows R&D savings by reducing the need to develop new formats and by simplifying camera testing.
- A common format allows greater control over the quality of conversions by third-party applications.
- The specification allows the addition of private metadata to DNG files, enabling differentiation.

Julieanne Kost has created a video on Adobe TV outlining the benefits of DNG in your everyday workflow and how to use the Adobe DNG Converter:
http://tv.adobe.com/watch/the-complete-picture-with-julieanne-kost/the-advantages-of-the-dng-file-format/

Working in Adobe Camera Raw

Camera Raw icon

When you use Camera Raw to make adjustments (including straightening and cropping) to a camera raw image, the image's original camera raw data is preserved. The adjustments are stored in either the Camera Raw database, as metadata embedded in the image file, or in a sidecar XMP file (a metadata file that accompanies a camera raw file).

After you process and edit a camera raw file using the Camera Raw plug-in, an icon appears in the image thumbnail in Adobe Bridge.

If you open a camera raw file in Photoshop, you can save the image in other image formats, such as PSD, JPEG, Large Document Format (PSB), TIFF, Cineon, Photoshop Raw, PNG, or PBM. From the Camera Raw dialog box in Photoshop, you can save the processed files in Digital Negative (DNG), JPEG, TIFF, or Photoshop (PSD) formats. Although Photoshop Camera Raw software can open and edit a camera raw image file, it cannot save an image in a camera raw format.

The tiny XMP Explained

_MG_5589.dng

Raw file icon

_MG_5589.xmp

Sidecar .xmp file icon

Adobe's Extensible Metadata Platform (XMP) is a labeling technology that allows you to embed data about a file, known as metadata, into the file itself. With XMP, desktop applications and back-end publishing systems gain a common method for capturing, sharing, and leveraging this valuable metadata — opening the door for more efficient job processing, workflow automation, and rights management, among many other possibilities. With XMP, Adobe has taken the "heavy lifting" out of metadata integration, offering content creators an easy way to embed meaningful information about their projects and providing industry partners with standards-based building blocks to develop optimized workflow solutions.

The .xmp file is considered a sidecar file; in Bridge, if you rename or move the raw file, the .xmp file gets renamed or moved as well. Separating the raw file from the .xmp file (i.e. moving it to a different location), however, will disassociate the metadata from the raw file, so avoid doing this. The file is a text file and you can open it with any text editor.

The .xmp file stores all the camera and lens data, the changes you have made using ACR and any metadata you have added via Adobe Bridge or Lightroom or Photoshop Elements.

Tip: If you LOVE keywords try Seth Resnick's "Digital Workflow Lightroom Keywords" - http://www.sethresnick.com/tools.html#.UcOA2b_n_cu Experts say it is worth it's price in gold!

What's New in Adobe Camera Raw 8?

- Adobe Camera Raw (ACR) can now be accessed as a Photoshop filter. It is available as a standard filter and as a non-destructive Smart Filter. You can even apply Adobe Camera Raw adjustments as Smart Filters to individual Smart Object layers.
  Simply go to Filter > Adobe Camera Raw…

- You now have the option of using the Camera Raw filter when converting a document from 32 bits/channel to 16-bit or 8-bit. The option is controlled by a setting in Photoshop's File Handling Preferences. Like the HDR Tone Mapping, Camera Raw will only work with flat RGB and Grayscale documents.
  Please Note: You will be given the option to merge layers. If you decline, the Camera Raw dialog will not appear and default tone mapping will occur.To using The Feature
  1. In Photoshop, go to Edit > Preferences > File Handling…
  2. Under File Compatibility, turn on "Use Adobe Camera Raw to Convert Documents from 32 bit to 16/8 bit". Click OK.
  3. Open your 32-bit document.
  4. Go to Image > Mode > 8 Bits/Channel or 16 Bits/Channel.
  5. Choose to Merge Layers if the document is not flat.
  6. Select your settings in the Camera Raw filter dialog. Click OK.

- Merge to HDR Pro now offers the option for you to take your merged 32-bit documents directly into the Camera Raw Filter for processing. The resulting image will be a 32-bits/channel Smart Object with a Smart Filter.
  Using The Feature
  1. Go to Image > Automate > Merge to HDR Pro…
  2. Add or open files, then click OK to launch the main Merge to HDR Pro dialog.
  3. Choose "32-Bit" in the Mode pop-up menu. Note that the White Point Preview setting is dimmed and unavailable.
  4. "Complete Toning in Adobe Camera Raw" checkbox is ON by default. Click "Tone in ACR".
  5. Select settings in the Camera Raw filter dialog. Click OK.
     The resulting document will open in Photoshop as a 32-bits/channel Smart Object with a Smart Filter.

- Adobe Camera Raw 8 provides new ways to easily correct perspective problems and straighten horizons with the new Upright feature. To use, go to the Lens Profile tab inside Camera Raw.

- New and improved Healing Brush that supports noncircular brush sizes and gives you more control when perfecting your images. To use, select the healing brush on the top toolbar.

- A new Radial Gradient for off-center vignettes, blurring.

Support Materials:

Understanding digital raw capture -http://wwwimages.adobe.com/www.adobe.com/content/dam/Adobe/en/products/photoshop/pdfs/understanding_digitalrawcapture.pdf
Linear gamma - http://wwwimages.adobe.com/www.adobe.com/content/dam/Adobe/en/products/photoshop/pdfs/linear_gamma.pdf

Sources:

Photoshop CC / In depth : Camera Raw- http://www.adobe.com/products/photoshop/extend.html
Photoshop CC / In depth : Digital Negative (DNG) -http://www.adobe.com/products/photoshop/extend.displayTab2.html
Photoshop CC Manual, Pages 306 to 361 - http://helpx.adobe.com/pdf/photoshop_reference.pdf
Jeff Tranberry's Digital Imaging Crawlspace - http://blogs.adobe.com/crawlspace/2011/03/why-doesnt-my-version-of-photoshop-or-lightroom-support-my-camera.html#proprietaryformats
Extensible Metadata Platform (XMP)- http://www.adobe.com/products/xmp/

Ps-PDX
Portland and Vancouver
Photoshop User Group
http://www.meetup.com/ps-pdx

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Camera Raw Keyboard Shortcuts for Mac OS (filmstrip mode)

Command	Shortcut
Move Up One Image	Up Arrow or Cmd-Left Arrow
Move Down One Image	Down Arrow or Cmd-Right Arrow
Select All	Cmd-A
Deselect All	Cmd-Shift-A
Select Rated Images	Opt Select All
Synchronize (bypass dialog box)	Opt Synchronize
Select First Image	Home
Select Last Image	End
Add to Selection (Discontiguous)	Cmd-click image
Add to Selection (Contiguous)	Shift-click last image
Delete Selected Image	Cmd-Del (Delete or Backspace)
Assign * Rating to Image	Cmd-1
Assign ** Rating to Image	Cmd-2
Assign *** Rating to Image	Cmd-3
Assign **** Rating to Image	Cmd-4
Assign ***** Rating to Image	Cmd-5
Decrease Rating *	Cmd-, (comma)
Increase Rating by *	Cmd-. (period)
Assign Red Label to Image	Cmd-6
Assign Yellow Label to Image	Cmd-7
Assign Green Label to Image	Cmd-8
Assign Blue Label to Image	Cmd-9
Assign Purple Label to Image	Cmd-Shift-0 (zero)

Camera Raw Keyboard Shortcuts for Windows (filmstrip mode)

Command	Shortcut
Move Up One Image	Up Arrow or Ctrl-Left Arrow
Move Down One Image	Down Arrow or Ctrl-Right Arrow
Select All	Ctrl-A
Deselect All	Ctrl-Shift-A
Select Rated Images	Alt Select All
Synchronize (bypass dialog box)	Alt Synchronize
Select First Image	Home
Select Last Image	End
Add to Selection (Discontiguous)	Ctrl-click image
Add to Selection (Contiguous)	Shift-click last image
Delete Selected Image	Ctrl-Del (Delete or Backspace)
Assign * Rating to Image	Ctrl-1
Assign ** Rating to Image	Ctrl-2
Assign *** Rating to Image	Ctrl-3
Assign **** Rating to Image	Ctrl-4
Assign ***** Rating to Image	Ctrl-5
Decrease Rating by *	Ctrl-, (comma)
Increase Rating by *	Ctrl-. (period)
Assign Red Label to Image	Ctrl-6
Assign Yellow Label to Image	Ctrl-7
Assign Green Label to Image	Ctrl-8
Assign Blue Label to Image	Ctrl-9
Assign Purple Label to Image	Ctrl-Shift-0 (zero)